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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,431	08/31/2005	Robin John Batterham	4623-045789	2821
<div>28289 7590 12/28/2007 THE WEBB LAW FIRM, P.C. 700 KOPPERS BUILDING 436 SEVENTH AVENUE PITTSBURGH, PA 15219</div>				
			<div>EXAMINER MCGUTHRY BANKS, TIMA MICHELE</div>	
			<div>ART UNIT 1793</div>	<div>PAPER NUMBER</div>
			<div>MAIL DATE 12/28/2007</div>	<div>DELIVERY MODE PAPER</div>

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/516,431

Applicant(s)

BATTERHAM ET AL.

Examiner

Tima M. McGuthry-Banks

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 9-17, 19, 20, 22, 23 and 25-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 9-17, 19, 20, 22, 23, 25-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

Claims 1, 6, 9, 10, 2, 23 and 25-27 are currently amended, Claims 2-4, 11, 16, 17, and 19 are as previously presented, Claims 5, 7, 8, 18, 21, and 24 are cancelled, and Claims 13-15 are as originally filed.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 6, 9-12, 16, 20, 22, 23 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 92/018249.

WO '249 discloses a process for recovering gold from sulfide bearing ores (p. 1 lines 4-22) where the ore is crushed and screened (p. 2 lines 20-24) and exposed to pulses of microwave energy (p. 2 lines 3-8). WO '249 discloses that X-ray diffraction (XRD) revealed there was no significant difference between crushed ore samples before and after microwave energy processing (p. 9 lines 18-23) and teaches controlling energy to prevent fusing or oxidation (pp. 9-11), which in the absence of further structural limitations, examiner contends is the same as "without significantly altering the mineralogy" (claim 1), "without catastrophic destruction of the ore particles" (claims 2) and without "catastrophic break down of the particles" (claim 20). WO '249 discloses that XRD indicated that conductive constituents were all affected to a minor degree by microwave processing (p. 9 lines 23-30), and that the microwave energy causes

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“mechanical breakdown” (p. 3 lines 21-25) therefore structural alteration of the ore particles occurred as in instant claims 1, 20, 21 and 27. Regarding the duration of pulses, WO '249 teaches pulses of 1 to 30 seconds duration (abstract); in the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists. See MPEP § 2144.05. Regarding the dimension of the particles, 95% of the ore passes through a 2 mm screen (abstract).

With respect to claims 6 and 22, WO '249 discloses exposing the ore to 1300 W of pulsed microwave energy (p. 10 line 27 – p. 1 line 1), which is pulse of high energy as in claims 5, 6 and 22.

With respect to the pulse period time in Claims 9, 10, 25, and 26, a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation; therefore a *prima facie* case of obviousness exists. See MPEP § 2144.05 II B.

With respect to claims 11 and 27, WO '249 discloses recovering gold from ore (abstract).

With respect to claim 12, WO '249 discloses treatment of gold in sulfide ore (p. 1 lines 7-21 and p. 9 line 31 – p. 10 line 26).

With respect to claim 16, WO '249 discloses treatment of ore containing pyrite (p. 5 lines 1-5 and p. 9 lines 8-15).

Regarding Claim 23, WO '249 meets the limitation of pulses at high energy, since the pulses are between 650 W and 1300 W (page 14, lines 16 and 17).

Claims 4 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 92/018249 (WO '249) as applied to Claims 1 and 12, and further in view of Haque (1999).

WO '249 discloses the invention substantially as claimed. However, WO '249 does not disclose screening to remove fines from the ore particles as in Claim 4 or disclose copper (claim 13), nickel (claim 14) or uranium (claim 15).

With respect to claim 4, Haque (1999) reports a review of Microwave-assisted mineral treatment tests (abstract), and reports that particle size is an important factor in heating ores, and that depending on the type of ore smaller particles will either heat faster or slower than larger, e.g. for magnetite coarser particles heat faster (paragraph bridging pp. 11 and 12). Particle size is therefore recognized in the art as a result effective variable and would have been optimized in the process of WO '249 as a matter of routine investigation by one of ordinary skill in the art at the time the invention was made, since Haque (1999) teaches that size affects heating rates (see M.P.E.P. § 2144.05, II, B).

With respect to claims 13-15, Haque (1999) discloses results of studies of sulfidic ores including chalcopyrite (table 6, p.9) and pitchblende containing uranium (Table 5, p. 8) which indicate that both heat readily from microwave exposure, therefore one of ordinary skill in the art would be motivated to treat chalcopyrite or pitchblende ores containing uranium in the process of WO '249 since Haque (1999) teaches that both ores are readily heated by microwaves, and heating is desired in WO '249. Further, since Haque (1999) teaches that most sulfide ores tested heated well (p. 11, 1st paragraph) one of ordinary skill in the art would have reasonable expectation of success in treating nickel sulfide ore in the process of WO '249 since the ability to heat of the ore by microwave energy is desired.

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Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO '249 as applied to Claim 1 above, and further in view of GB 2 198 242 (GB '242).

WO '249 is applied as discussed above regarding claim 1.

WO '249 does not disclose use of the process with diamond bearing ore.

GB '242 discloses a method of sorting ore particles, including kimberlite (i.e. diamond bearing) based on attenuation of microwave radiation (abstract). GB '242 teaches that kimberlite ore is strongly attenuating (i.e. absorbs energy) (p. 6); therefore one of ordinary skill in the art would have reasonable expectation of success in treating diamond bearing ore such as kimberlite in the process of WO '249, since the absorption of energy by the ore (i.e. heating) is desired.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO '249 as applied to Claim 1 above, and further in view of Connell (U.S. Pat. No. 3,261,959) or Haque (1999).

WO '249 is applied as discussed above regarding claim 1.

WO '249 does not disclose microwave treatment on a conveyor.

Connell et al. discloses a microwave treatment system for ores while traveling on an enclosed conveyor belt which applies uniform application of microwave energy to the ores on the belt (col. 3 lines 28-64). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the conveyor system of Connell et al. to process ores in WO '249 since Connell discloses uniform treatment of ores in this system.

Haque (1999) discloses that microwave heating is performed either in batch or continuous, and that continuous systems are equipped with conveyor type belts to move the material through the oven for heating (pp. 4 and 5). It would have been obvious to one of

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ordinary skill in the art at the time the invention was made to use the conveyor belt system of Haque (1999) in the process of WO '249 to provide a continuous process as taught by Haque (1999).

Response to Arguments

Applicant's arguments, filed 19 October 2007, with respect to Connell under 35 U.S.C. 102(b) have been fully considered and are persuasive. The rejection of Claims 1, 2, 19 and 20 has been withdrawn.

Applicant's arguments, filed 19 October 2007, with respect to Ridler under 35 U.S.C. 102(b) have been fully considered and are persuasive. The rejection of Claims 1, 2, 11, 20, and 27 has been withdrawn.

Applicant's arguments filed 19 October 2007 with respect to Beeby (WO 92/018249) has been fully considered but they are not persuasive. Applicant argues that Beeby does not disclose pulses less than one second in duration. The rejection under 35 U.S.C. 102(b) is withdrawn, but the touching or close range is obvious as explained above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tima M. McGuthry-Banks whose telephone number is (571) 272-2744. The examiner can normally be reached on M-F 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


13 December 2007


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